ENGLAND GE SYSTEM

178

HALEY & ALDRICH

BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

TECHNICAL MEMORANDUM

SAMPLING AND ANALYSIS PLAN SUPPLEMENT

To: **Mr. Brian Mossman**
Boeing Realty Corporation
3760 Kilroy Airport Way, Suite 500
Long Beach, CA 90806

From: **Haley & Aldrich, Inc.**

Date: **January 22, 2001**

Re: **Sampling and Analysis Plan Supplement for the Boeing Realty Corporation Former C-6 Facility – Parcel C, Los Angeles, California**

Haley & Aldrich, Inc. is herein providing this supplement to the *Sampling and Analysis Plan* (dated August 16, 2000) and *Addendum A, Sampling and Analysis Plan* (dated September 12, 2000), prepared by Kennedy/Jenks Consultants (KJC) for Boeing Realty Corporation's (BRC's) Former C-6 Facility – Parcel C, Los Angeles, California (subject property). The above-referenced documents are herein referred to as "the SAPs."

OVERVIEW/PURPOSE

This supplement includes recommendations for sampling:

1. in the suspected volatile organic compound (VOC) source areas, proposed for possible interim remediation by soil vapor extraction (SVE), and

2. in other portions of the property to obtain additional information for human health risk assessment purposes.

Sampling in the VOC source areas, as noted in Item no. 1 above, shall be prioritized so that delineation of the specific VOC source areas may be made to further assess whether these areas shall be remediated in accordance with the *Draft Interim Remediation Plan for VOC-impacted Soil at Building 1 and Building 36, Former C-6 Facility, Torrance, California (IRAP),* dated November, 2000.

SUMMARY OF ADDITIONAL SAMPLING AND ANALYSIS

The proposed soil sample locations identified in the SAPs and the recommended supplemental soil, soil gas, and groundwater sampling locations are depicted on Figure 1. A grid is overlain on Figure 1 to assist with identification of the sample locations. In addition, a list of the supplemental samples,

including the corresponding environmental feature or sample name, and grid number, and information pertaining to the sample type (i.e., soil, soil gas, ground water), sample depths, and type of analysis required for each sample location, is presented in Table 1.

Recommended supplemental soil samples will be obtained from borings advanced in accordance with the procedures presented in the SAPs. Although boring depths are noted in Table 1, drilling shall continue at each boring location and soil samples collected at 10-foot intervals until impacts are not apparent (e.g., no apparent soil discoloration or odors) and total organic vapor concentrations in sample headspace are less than 10 parts per million per volume (ppmv) as measured by a photoionization detector (PID). Recommended ground water samples will be obtained from the shallow ground water zone using Hydropunch™ technology, or equivalent.

Soil gas samples were not previously obtained or proposed for Parcel C. Recommended soil gas samples will be collected at a depths of 10 and 20 feet below ground surface (bgs), and will be analyzed in the field by a mobile laboratory for the 22 Los Angeles Regional Water Quality Control Board (LARWQCB) Wellhead Investigation Program (WIP) VOCs. Additional soil samples may be recommended after evaluation of the soil gas sample results.

A description of the rationale for the proposed additional sampling and analytical program is presented below.

POTENTIAL VOC SOURCE AREAS

A review of soil analytical data for Parcel C, as presented in previously prepared reports, indicates that volatile organic compound (VOC) impacts at and in proximity to former Buildings 1, 2, and 36 do not appear to be adequately delineated. As indicated in the previously referenced IRAP, the above-noted apparent former Buildings 1 and 36 VOC source area is identified as Area 1-1 and the apparent former Building 2 VOC source area is identified as Area 2-1. The general locations of Areas 1-1 and 2-1 are labeled on Figure 1 and detailed on Figure 2.

Area 1-1

VOC (primarily trichloroethylene [TCE]) impacted soil has been identified along the northeastern portion of Parcel C (at and in proximity to former Buildings 1 and 36) and extending onto the south-central portion of Parcel A (south of former Building 37). A review of analytical data indicates that the lateral extent of TCE impacts above the field action level (FAL) in Area 1-1 does not appear to be delineated to the north. The FAL for TCE is 0.027 milligrams per kilogram (mg/kg). Based on the analytical data from collected soil samples, the vertical extent of TCE impacts above the FAL in Area 1-1 does not appear to be delineated beneath and west of former Building 36 and beneath the central portion of former Building 1.

Supplemental soil sampling is recommended to provide additional information pertaining to the lateral and vertical extent of VOC impacts in soil of Area 1-1. Soil gas sampling is recommended to provide additional information regarding VOC source areas and to provide soil pore gas concentrations for use in the human health risk assessment.

sampling a randomly selected subset of the grid nodes. Based on the size of the buildings and exterior open areas, a 50-foot by 50-foot grid was placed over Parcel C. Ten percent of the grid nodes were randomly selected within each former building footprint and in exterior open areas for soil gas sampling. The approach used to identify open area soil gas sample locations is presented in Table 2.

Open Area Soil Sample Locations

As described above, a 50-foot by 50-foot grid was placed over Parcel C. Soil boring locations were selected randomly in open areas where no sample locations were identified in the SAPs. Ten percent of the grid nodes in open interior and exterior areas were randomly selected as soil boring locations.

Based on a review of existing data and SAPs, no soil samples have been collected or are proposed to be collected within the footprints of Buildings 33, 58, and 40 on Parcel C. Therefore, it is recommended that soil samples be collected at 5 and 10 feet bgs and analyzed for VOCs, metals, and TPH. Additionally, if TPH is detected within a soil boring, the soil sample with the highest TPH concentration detected within the soil boring will be additionally analyzed for SVOCs and PAHs. As indicated previously, although estimated boring depths are indicated, drilling shall continue at each boring location and soil samples collected at 10-foot intervals until impacts are not apparent (e.g., no apparent soil discoloration or odors) and total organic vapor concentrations in sample headspace are less than 10 ppmv as measured by a PID.

Step-out Soil Sample Locations

Step-out boring locations have been selected to further characterize the lateral and vertical extent of impacts. Step-out boring locations and rationale include:

- Four step-out boring locations are recommended near two samples (13B and 14) collected within the footprint of former Building 29 that exhibited tetrachloroethene (PCE) concentrations greater than the FAL of 0.023 mg/kg. The two samples exceeded the PCE FAL at depths between 5 and 10 feet bgs. The step-out soil samples will be collected at 5, 10, 15, 20, and 30 feet bgs and analyzed for VOCs. The sample locations are identified as C029S01, C029S02, C029S03, and C029S04.

- Arsenic was detected above its FAL of 39 mg/kg in one sample (2BB-5-20) at 1 foot bgs. This sample was collected in a paved area between Building 29 and Building 1 and north of Building 32. Two step-out borings are recommended. The step-out soil samples will be collected at 1 and 5 feet bgs, and analyzed for VOCs and TPH. The sample locations are identified as C032S01 and C032S02.

- VOC concentrations were detected above the FALs at and in proximity to former Buildings 1, 2, and 36. Additional soil samples are recommended, as described above under the heading Potential VOC Source Areas.

In addition, a former chromic acid tank and two rinse tanks within Building 2 were removed in 1988. The tank removal, remedial excavation, and soil sampling activities are summarized in the following two May 13, 1988 reports prepared by Woodward-Clyde Consultants:

- *Chromic Acid Soil Remediation at Douglas Aircraft Company, C6 Facility in Torrance, California*
- *Recommendations from the Chromic Acid Tank Investigation at the Torrance (C6) Facility, dated 12 May 1988*

A review of these reports indicates that chromium-impacted soil was removed following tank removal activities. Impacted soil was excavated to depths of approximately 20 feet bgs. Soil samples were obtained from the limits of the excavation and were analyzed for total chromium. The total chromium results for these samples ranged from 38 to 170 mg/kg. The FALs for total and hexavalent chromium are 40 and 42 mg/kg, respectively. Of the samples collected from the limits of the excavation, two had total chromium results greater than 40 mg/kg. These samples were obtained from a depth of 11 feet bgs at the bottom of the southern portion of the excavation (44 mg/kg), and a depth of 10 feet bgs along the sidewall of the northern portion of the excavation (170 mg/kg). The above-referenced May 13, 1988 remediation report further indicates that based on the spatial concentration trends of other samples obtained from the tank excavation, chromium impacted soil likely does not extend more than two feet into the northern sidewall.

The location of the subject former chromic acid tank and rinse tanks within Building 2 are not apparent based on the tank location description and figures presented in the May 13, 1988 reports. Additional information regarding their locations will be obtained from BRC. Recommendations regarding additional supplemental sampling adjacent to the former tank excavation will be presented as a separate technical memorandum after information is obtained regarding the former excavation location.

Supplemental Analytical Program

It is recommended that SVOC (EPA Method 8270C) and PAH (EPA Method 8310) analyses be included in the analytical program if TPH is detected at any of the following sample locations:

- Building 1 – Environmental Feature Nos. A3, A14, and A23;
- Building 2 – Environmental Feature Nos. F20 and S39; and
- Building 3 – Environmental Feature Nos. T14 and T15.

The soil sample exhibiting the highest TPH concentration from each boring shall be analyzed for SVOCs and PAHs.

In addition, it is recommended that the TPH results from soil samples collected at Environmental Feature Nos. A18, S14, S15, S16, 59, and S37 (Grids O26, S17, P26, O26, F21, and L33, respectively) be reviewed as soon as available. Should TPH concentrations be detected, a sample obtained at the depth of the highest reported TPH concentration from each boring shall be analyzed for SVOCs and PAHs.

Geotechnical Sample Locations

It is recommended that three of the exterior open area soil borings be analyzed for geotechnical parameters in addition to the previously noted chemical parameters. These borings will be advanced to 50 feet bgs and samples will be collected at 5, 20, and 50 feet bgs. Each sample will be analyzed

for dry bulk density and moisture content (ASTM D-2937), total organic carbon (Walkley-Black), sieve analysis (ASTM D-422), total porosity (ASTM D-854), and permeability (ASTM D-2484).

INVESTIGATION-DERIVED WASTE (IDW) MANAGEMENT

IDW generated during the course of the investigation will be managed in accordance with the *Site-Wide Soil and Waste Management Plan*, dated October 31, 2000.

LIMITATIONS

This memorandum is intended as a supplement to referenced documents prepared by others. This memorandum reflects site conditions observed and described by records available to Haley & Aldrich as of the date of preparation. The passage of time may result in significant changes in site conditions, technology, or regulatory conditions which could alter the findings and/or recommendations of the memorandum. Accordingly, Client and any other party to whom the memorandum is provided recognize and agree that Haley & Aldrich shall bear no liability for deviations from observed conditions or available records after the time of preparation.

This memorandum has been prepared under the supervision of and has been reviewed by the undersigned registered professional. No representation as to the completeness or accuracy of other documents and records available to Haley & Aldrich is provided.

Sincerely yours,
HALEY & ALDRICH, INC.

Richard M. Farson, P.E.
Senior Engineer
Industrial Environmental Group

Scott Zachary
Vice President
Industrial Environmental Group

Attachments: Table 1 – Sampling and Analytical Program Supplement
Table 2 – Open Area Sampling Matrix
Figure 1 – Environmental Target and Investigation Locations
Figure 2 – Environmental Target and Investigation Locations-Areas 1-1 & 2-1

Table 1 (Page 1 of 5)

SAMPLING AND ANALYTICAL PROGRAM SUPPLEMENT
Boeing Realty Corporation Former C-6 Facility, Parcel C

Bldg No.	Feature Location	Sample ID/ Feature No.	Sample Grid Coordinates	Description	Soil Gas (10 ft bgs)	Soil Gas (20 ft bgs)	Soil Boring	Soil Boring Sample Depth (ft) †										Groundwater Sample	Recommended Supplement to the SAPs					Comments
								1	5	10	15	20	30	40	50	60	70		VOCs	SVOCs/PAHs	Metals	TPH	Geotechnical	
	SVE Design/Plume Delineation Borings and Soil Gas Locations																							
1	Building 1, northwest quadrant	PD-1	N8	Open Area			1		x	x	x	x	x						x					
1	Building 1, northeast quadrant	PD-2	P8	Open Area			1		x	x	x	x	x	x	x	x	x		x					
1	Building 1, northeast quadrant	PD-3	Q8	Paint Booths			1		x	x	x	x	x	x					x					
2	Building 2, northwest quadrant	PD-4	H24	Open Area	1	1													x					Soil borings to be determined.
2	Building 2, northwest quadrant	PD-5	H26	Storm Drain	1	1													x					Soil borings to be determined.
2	Building 2, northwest quadrant	PD-6	F26	Storm Drain	1	1													x					Soil borings to be determined.
2	Building 2, exterior to northwest quadrant	PD-7	D25	Open Area	1	1													x					Soil borings to be determined.
2	Building 2, northwest quadrant	PD-8	I28	Near Clarifier	1	1													x					Soil borings to be determined.
2	Building 2, northwest quadrant	PD-9	G28	Oil Quench Pit	1	1													x					Soil borings to be determined.
2	Building 2, southwest quadrant	PD-10	J31	Open Area	1	1													x					Soil borings to be determined.
2	Building 2, southwest quadrant	PD-11	I31	Near Storm Drain	1														x					Soil borings to be determined.
2	Building 2, southwest quadrant	PD-12	E30	Open Area	1	1													x					Soil borings to be determined.
2	Building 2, southwest quadrant	PD-13	G33	Open Area	1	1													x					Soil borings to be determined.
36	Building 36, southwestern corner	PD-14	P3	Open Area			1		x	x	x	x	x	x					x	*	#	#		
2	Building 2, southwest quadrant	PD-15	G31	Open Area	1	1													x					Soil borings to be determined.
36	Building 36, western portion	PD-16	O2	Open Area			1		x	x	x	x	x	x	x	x	x		x	*	#	#	+	Samples for geotecchnical analysis at 5, 20, and 50 feet bgs.
2	Building 2, exterior to southwest quadrant	PD-17	D29	Near Clarifier			1		x	x	x	x	x	x	x	x	x	x	x	*	#	#	+	Analyze groundwater for VOCs and metals. Samples for geotechnical analysis at 5, 20, and 50 feet bgs.
2	Building 2, northwest quadrant	PD-18	I25	Near Deburring Area			1		x	x	x	x	x	x	x	x	x	x	x	*	#	#		Analyze groundwater for VOCs and metals.
2	Building 2, southwest quadrant	PD-19	I34	Near Oil Quench Area			1		x	x	x	x	x	x	x	x	x	x	x	*	#	#	+	Analyze groundwater for VOCs and metals. Samples for geotechnical analysis at 5, 20, and 50 feet bgs.
1	Parcel A, exterior to Building 1	PD-20	Q1	Step-out onto Parcel A, approx. 25 ft northeast of former boring 2BB-36-15			1		x	x	x	x	x	x	x	x	x		x					Analyze 5- and 10-foot samples only if impacts are apparent and/or total organic vapor concentrations in sample headspace using a PID are greater than 10 ppmv.
1	Parcel A, exterior to Building 1	PD-21	P1	Step-out onto Parcel A, approx. 30 ft north of former borings 2BB-36-14 and 2BB-35-8			1		x	x	x	x	x	x	x	x	x		x					Analyze 5- and 10-foot samples only if impacts are apparent and/or total organic vapor concentrations in sample headspace using a PID are greater than 10 ppmv.

SAMPLING AND ANALYTICAL PROGRAM SUPPLEMENT
Boeing Realty Corporation Former C-6 Facility, Parcel C

Bldg No.	Feature Location	Sample ID/ Feature No.	Sample Grid Coordinates	Description	Soil Gas (10 ft bgs)	Soil Gas (20 ft bgs)	Soil Boring	Soil Boring Sample Depth (ft) †										Groundwater Sample	Recommended Supplement to the SAPs					Comments
								1	5	10	15	20	30	40	50	60	70		VOCs	SVOCs/PAHs	Metals	TPH	Geotechnical	
1	Parcel A, exterior to Building 1	PD-22	O1	Step-out onto Parcel A, approx. 25 ft northwest of former boring 2BB-36-16			1		x	x	x	x	x	x	x	x	x		x					Analyze 5- and 10-foot samples only if impacts are apparent and/or total organic vapor concentrations in sample headspace using a PID are greater than 10 ppmv.
	Risk-Based Borings and Soil Gas Locations																							
1	Building 1 Basement, southeast quadrant	42	Q12	Paint Stripping System	1														x					
1	Building 1, southeast quadrant	43	P13	Machine Shop	1														x					
1	Building 1, northwest quadrant	A3	L6	Aboveground Degreaser Tanks	1		Planned												x	*				
1	Building 1, southwest quadrant	A14	K13	Degreaser	1		Planned												x	*				
1	Building 1, northwest quadrant	A23	L7	Degreaser Tank	1		Planned												x	*				
1	Building 1 Basement, southeast quadrant	D17	Q13	Drain (paint stripping and booths)	1														x					
1	Building 1, northeast quadrant	F2	M6, O6	Machine Foundations	2														x					
1	Building 1, southeast quadrant	F3	O12	Machine Pit	1														x					
1	Building 1 Basement, northeast quadrant	P20	P9	Paint Booths	1		1	x	x	x	x	x	x						x		#			
1	Building 1 Basement, northeast quadrant	P20	P11	Paint Booths	1		1	x	x	x	x								x		#			
1	Building 1, eastern portion	S2	R7	Paint Mixing Area	1		1	x	x	x	x	x	x						x		#			
1	Building 1, southeast quadrant	S3	P4, Q4	Clarifier/Anodizing Paint Machine	2														x					
1	Building 1, northeast quadrant	S3	O4	Near Clarifier/Anodizing Paint Machine	1		1	x	x	x	x								x		#			
1	Building 1, northwest quadrant	U24	L6	UST (degreaser tank area)	1														x					
1	Throughout Building 1	Blue Triangle/ Green Dot	See comments	Open Areas	5		5		x	x									x	*	#	x		011, N14, M10, L13, J6
1	Throughout Building 1	Blue Triangle/ Green Dot	See comments	Open Areas	3		3		x	x	x	x	x						x	*	#	x		010, N7, L5
2	Building 2, northeast quadrant	A16	Q27	Paint Stripper Tanks	1														x					
2	Building 2, northeast quadrant	A18	O26	Degreaser	1														x					
2	Building 2, northeast quadrant	P2	Q26	Paint Booth	1														x					
2	Building 2, northeast quadrant	P3	P27	Paint Booth	1														x					
2	Building 2, northeast quadrant	P8	R29	Paint Booth	1														x					
2	Building 2, northeast quadrant	S14	S17	Degreaser Pit	1														x					

SAMPLING AND ANALYTICAL PROGRAM SUPPLEMENT
Boeing Realty Corporation Former C-6 Facility, Parcel C

Bldg No.	Feature Location	Sample ID/ Feature No.	Sample Grid Coordinates	Description	Soil Gas (10 ft bgs)	Soil Gas (20 ft bgs)	Soil Boring	Soil Boring Sample Depth (ft) †									Groundwater Sample	Recommended Supplement to the SAPs					Comments
								1	5	10	15	20	30	40	50	60	70	VOCs	SVOCs/PAHs	Metals	TPH	Geotechnical	
2	Building 2, northeast quadrant	S15	P26	Degreaser Pit	1													x					
2	Building 2, northeast quadrant	S16	O26	Degreaser Pit	1													x					
2	Building 2, southeast quadrant	F15	Q34	Paint Stripping Tanks	1													x					
2	Building 2, southeast quadrant	P9	O35	Paint Booth	1													x					
2	Building 2, southeast quadrant	P11	R37	Paint Booth	2													x					
2	Building 2, northwest quadrant	27	G22	Hazardous Waste Storage Areas	1													x					
2	Building 2, northwest quadrant	28	H22	Catch Basin	1													x					
2	Building 2, northwest quadrant	31	D26	Photo Lab	1	1												x					
2	Building 2, northwest quadrant	P5	K17	Paint Booth	1													x					
2	Building 2, northeast quadrant	P6	L17	Paint Booth	1													x					
2	Building 2, northwest quadrant	P7	K22	Paint Booth	1													x					
2	Building 2, northwest quadrant	S22	I22	Clarifier	1													x					
2	Building 2, northwest quadrant	S25	E21	Clarifier	1	1												x					
2	Building 2, northwest quadrant	S47	H17	Sump	1													x					
2	Building 2, southwest quadrant	S69	D29	Plating Tanks	1													x					
2	Building 2, northwest quadrant	S69	E29	Plating Tanks	1	1												x					
2	Building 2, southwest quadrant	F20	I39	Degreaser	1		Planned											x	*				
2	Building 2, southwest quadrant	P13	H34	Paint Spray Booth	1													x					
2	Building 2, southwest quadrant	P14	H37	Paint Spray Booth	1													x					
2	Building 2, southwest quadrant	P15	G37	Paint Spray Booth	1													x					
2	Building 2, southwest quadrant	P16	G38	Paint Spray Booth	1													x					
2	Building 2, southwest quadrant	D18	D30	Drain (near clarifier and AST)	1		Planned											x					
2	Building 2, southwest quadrant	S37	J32, I33	Degreasers	3		Planned											x	*				
2	Building 2, southwest quadrant	S37	L33	Degreaser	1													x					
2	Building 2, southwest quadrant	S37	J33	Degreaser	1		2 -Planned											x	*				
2	Building 2, southwest quadrant	S37A	I34	Clarifier	1		Planned											x	*				
2	Building 2, southwest quadrant	S38	L35	Sump	1													x					
2	Building 2, southwest quadrant	S39	K33	Degreaser	1		Planned											x	*				
2	Building 2, exterior to north	F6	L16	Anodizing Process System	1													x					
2	Building 2, northwest quadrant	F11	G18	Coolant and Hydraulic Fluids	1													x					
2	Building 2, northwest quadrant	F11	G19	Coolant and Hydraulic Fluids	1		1		x	x								x	*	x	x		
2	Building 2, northwest quadrant	26	J22	Anodizing System	1		1		x	x								x		x			
2	Building 2, northwest quadrant	48	J25	Drills	1		1		x	x								x	*	x	x		
2	Building 2, northwest quadrant	52	F24	Casting & Forging Storage	1	1												x					

SAMPLING AND ANALYTICAL PROGRAM SUPPLEMENT
Boeing Realty Corporation Former C-6 Facility, Parcel C

Bldg No.	Feature Location	Sample ID/ Feature No.	Sample Grid Coordinates	Description	Soil Gas (10 ft bgs)	Soil Gas (20 ft bgs)	Soil Boring	Soil Boring Sample Depth (ft) †									Groundwater Sample	Recommended Supplement to the SAPs					Comments
								1	5	10	15	20	30	40	50	60	70	VOCs	SVOCs/PAHs	Metals	TPH	Geotechnical	
2	Building 2, northwest quadrant	51	F25	Tail Millings	1	1	1		x	x								x	*	x	x		
2	Building 2, northwest quadrant	S67	I27	Clarifier	1	1												x					
2	Building 2, southwest quadrant	P13	H34	Paint Booth	1	1												x					
2	Building 2, southwest quadrant	A11	H29	AST	1													x					
2	Throughout Building 2	Blue Triangle	See comments	Other Open Areas (Other than PD sample locations)	27	5												x					D17, D20, D27, D38, E23, F28, F32, G21, G23, G35, I23, I29, J18, K35, L19, M25, M31, M34, M37, O29, P18, Q21, Q31, R25, S26, S32, S39
3	Building 3, southern half	18	B35	Chemical Lab	1													x					
3	Building 3, southern half	P1	B34	Paint Lab	1													x					
3	Building 3, northwest quadrant	T14, T15	B25	Transformers			Planned												*				
3	Throughout Building 3	Blue Triangle/ Green Dot	C22, C31	Open Areas	2	1	2		x	x								x	*	x	x		
20	Building 20 , northern half	S8	C11	Clarifier	1													x					
20	Building 20, center	Blue Triangle	C13	Open Area	1													x					
29	Building 29, exterior to east	C029S01	G7	Step-out Sample Location	1		1		x	x	x	x	x					x					PCE detected above the FALs.
29	Building 29, northern half	C029S02	E7	Step-out Sample Location	1		1		x	x	x	x	x					x					PCE detected above the FALs.
29	Building 29, exterior to west	C029S03	D6	Step-out Sample Location	1		1		x	x	x	x	x					x					PCE detected above the FALs.
29	Building 29, northern half	S7	F7	Clarifier	1													x					
29	Building 29, northern half	C029S04	F5	Step-out Sample Location	1		1		x	x	x	x	x					x					PCE detected above the FALs.
29	Throughout Building 29	Blue Triangle/ Green Dot	E8, F12	Open Area	2		2		x	x								x	*	x	x		
32	Building 32, exterior to north	10	F8	Waste Transfer Area (storage of paint waste)	1													x					
32	Building 32, exterior to north	11	F8	Paint Area (10,000-gallon waste container tanks)	1													x					
32	Building 32, exterior to north	12	F6	Paint Storage Area	1													x					
32	Building 32, center	Blue Triangle/ Green Dot	G12	Open Area	1		1		x	x								x	*	x	x		
32	Building 32, exterior to north	C032S01	H8	Step-out Sample Location			1	x	x	x										x			Arsenic detected above the FALs.
32	Building 32, exterior to north	C032S02	G9	Step-out Sample Location			1	x	x	x										x			Arsenic detected above the FALs.
33	Building 33, center	Blue Triangle/ Green Dot	J2	Open Area	1		1		x	x								x	*	x	x		
40	Building 40, center	Blue Triangle/ Green Dot	Q14	Open Area	1		1		x	x								x	*	x	x		
58	Building 58, southern half	Blue Triangle/ Green Dot	B7	Open Area	1		1		x	x								x	*	x	x		

SAMPLING AND ANALYTICAL PROGRAM SUPPLEMENT
Boeing Realty Corporation Former C-6 Facility, Parcel C

Bldg No.	Feature Location	Sample ID/ Feature No.	Sample Grid Coordinates	Description	Soil Gas (10 ft bgs)	Soil Gas (20 ft bgs)	Soil Boring	Soil Boring Sample Depth (ft) †									Groundwater Sample	Recommended Supplement to the SAPs					Comments
								1	5	10	15	20	30	40	50	60	70		VOCs	SVOCs/PAHs	Metals	TPH	Geotechnical	
66	Throughout Building 66	Blue Triangle	See comments	Open Areas	10														x					X22, U18, V20, U24, V27, U29, X31, V33, W36, V38
NA	Open Exterior Areas	Blue Triangle/ Green Dot	See comments	Open Exterior Area soil gas and soil boring locations	15		15		x	x									x	*	x	x		C10, C16, D41, G8, I16, J41, M3, M41, Q16, S41, W15, X41, Y21, Y27, Y37
	Total				**154**	**23**	**56**																	

Notes:
Borings will be advanced deeper if field indicators and/or PID readings over 10 ppmv are observed

Symbols:
Conduct the selected analyses on the sample collected at the 5- and 10-foot depth only.
+ Geotechnical sample locations (samples from 5, 20, and 50 feet bgs).
† Borings will be advanced deeper than specified if field observations indicate impacts. Sampling depths will be at 10-foot intervals starting at 20 feet bgs if needed.
* If TPH is detected, analyze for SVOCs/PAHs in the sample with the highest TPH detection per boring.

Abbreviations:
AST - aboveground storage tank
FAL - field action level
KJC - Kennedy Jenks Consultants
PAH - polynuclear aromatic hydrocarbon
PCE - tetrachloroethene
bgs - below ground surface
SVOC - semivolatile organic compound
TCE - trichloroethylene
TPH - total petroleum hydrocarbons
UST - underground storage tank
VOC - volatile organic compound
PID - Photoionization detector
ppmv - parts per million by volume

References:
Kennedy Jenks Consultants. 2000. Sampling and Analysis Plan, Boeing Realty Corporation's C-6 Facility - Parcel C, Los Angeles, California. August 16.
Kennedy Jenks Consultants. 2000. Addendum A, Sampling and Analysis Plan, Boeing Realty Corporation's C-6 Facility - Parcel C, Los Angeles, California. September 12.

Table 2

BOEING FORMER C-6 PHASE II SOIL INVESTIGATION
OPEN AREA SAMPLING MATRIX

Open Area Classification	Description	Maximum Grid[a] Size	# Samples[b] (% of Grid Nodes)	Sample Depths	Sample Types
Nonindustrial Interior	• Office space • Nonmanufacturing storage	No proposed sampling	N/A	N/A	N/A
Industrial Interior	• Manufacturing, assembly, and storage buildings associated with aircraft production	50 ft x 50 ft	10 %	Surface[c] 5 ft (10 ft Soil Gas)	As Needed VOC/Solvents - Soil Gas and/or Soil Inorganics - Soil Petroleum - Soil PCB - Soil
Nonindustrial Exterior (Background)	• Parking lots • Roadways with no process utilities • Landscape areas	100 ft x 100 ft	5% 10% (Soil Gas)	Surface 5 ft[d] 20 ft[d] 50 ft[d]	VOCs SVOCs Petroleum PCBs Inorganics
Industrial Exterior	• Exterior spaces outside manufacturing, assembly, or storage buildings near ETs	50 ft x 50 ft	10%	Surface[c] 5 ft	Solvents - Soil Gas/Soil Inorganics - Soil Petroleum - Soil

N/A - Not Applicable

[a] Grid spacing may be adjusted if field indicators suggest impacts may be present.

[b] The number of grid nodes sampled may be adjusted based on observations in the field or results from previous Open Area sampling.

[c] Collect surface soil samples (0 to 1 foot bgs) when observable soil contamination or impacts such as stained soil exist or photoionization (PID) detector readings exceed 10 parts per million by volume.

[d] Sample depths are approximate and will be adjusted in the field to represent the predominant soil types of the near-surface soils (0 to 12 feet bgs) and the deeper soils.

Date Prepared: 1/19/01

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5 February 2001
C6-BRC-T-01-003

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

BOEING

Attention: John Geroch

Subject: **SAMPLING AND ANALYSIS PLAN SUPPLEMENT FOR BOEING REALTY CORPORATION, FORMER C-6 FACILITY, 19503 SOUTH NORMANDIE AVENUE, LOS ANGELES, CA**

Dear Mr. Geroch:

Please find enclosed for your review, a copy of the subject document prepared by Haley & Aldrich for Boeing Realty Corporation.

If you have any questions concerning this document, please contact the undersigned at 562-593-8623.

Sincerely,

Stephanie Sibbett
Boeing Realty Corporation

Cc: Mario Stavale, Boeing Realty Corporation
Scott Lattimore, Long Beach Division

enclosure